UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,860	12/21/2000	John F. Croix	SILI:005US/10026171	7308

7590 03/25/2004

John J. Bruckner
Fulbrigh & Jaworski L.L.P.
Suite 2400
600 Congress Avenue
Austin, TX 78701

EXAMINER	
VU, TUAN A	

ART UNIT	PAPER NUMBER
2124	7

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/746,860	CROIX, JOHN F.	
	Examiner	Art Unit	
	Tuan A Vu	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the application filed December 21, 2000.

Claims 1-57 have been submitted for examination.

Claim Objections

2. Claim 54 is objected to because of the following informalities: there is a extraneous ":" between 'comprising' and 'a computer program adapted to:' (line 1). Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 54 recites the limitation "said second sub-file" in line 5. There is insufficient antecedent basis for this limitation in the claim. This will be interpreted as if it were a sub-file.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 4, 6-10, 12, 14-24, 26, 28-32, 34, 36-50 and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al., "Method for Protecting Bytecode", WO

99/41651(19.08.99 – hereinafter Chiang), in view of Fallon et al., USPubN: 2002/0080871 (hereinafter Fallon).

As per claim 1, Chiang discloses a method comprising generating first sub-file of source code ; then encrypting said sub-file (e.g. *application code , encrypted application* - pg. 5, line 21 to col. 6, line 4); then writing it to a storage medium (e.g. pg. 6, lines 4-5, 15-19); then reading a second sub-file of source code from said storage; then decrypting said second sub-file and compiling it (e.g. *encrypted bytecode , class loader* – pg. 6, lines 21 to col. 7, line 7 – Note: an set of bytecode pertaining to a certain class determined to have some encryption characteristics is equivalent to a second sub-file from the original application; Fig. 1; Java Virtual Machine - pg. 4, line 11-13 – Note: JVM implies compiling before runtime).

But Chiang does not explicitly disclose that the storage medium is a buffer. The use of buffer for storing instructions to be loaded or decoded for a runtime application was a well-known concept in the art of instructions loading/decoding at the time the invention was made. Fallon, in a method to apply security to loading secure data for execution in a distributed system, using decompression analogous to that of Chiang, teaches the use of buffer before decompressing (Fig. 6). It would have been obvious for one of ordinary skill in the art at the time the invention was made to implement a buffer as taught by Fallon as a input to the decompression process of Chiang because this would provide the benefits of using a same temporary storage means when loading encrypted class files for decryption or loading encoded data for decoding as in Chiang's method and as in well-known common practices and by Fallon's method, thus facilitating the control of storage overflow; and measures for preventing unpredictable amount of data to process.

As per claims 2 and 4, Chiang discloses the first sub-file or second sub-file comprises a line of source code (Note: bytecode inherently includes a line of code).

As per claim 7, Chiang does not expressly disclose that the 2nd sub-file is less in size than the 1st sub-file; but in view of the compression as taught by Fallon (e.g. Fig. 6), it is recognized than compression also entails some modification scheme to alter the original sub-file just as encryption does to a bytecodes as in Chiang's method for the purpose of code distribution. Hence, Fallon as used in claim 1 discloses the teaching that the first sub-set file is larger in size than the second sub-file in view of Fallon's compressing of data prior to activation at the recipient's machine; and this limitation would also have been obvious because one of ordinary skill in the art at the time the invention was made would manage the bytecodes as taught by Chiang so that program files are compressed (i.e. first sub-file larger than compressed second sub-file) for optimizing the cross-platform distribution resources as suggested when bytecodes are used.

As per claims 6 and 8, Chiang discloses retrieving sub-file from the storage medium where the first sub-file is stored; hence has implicitly disclosed reading out from such storage or buffer, a second sub-file equal to (re claim 6 - when exact amount of byte code is read), or greater than first sub-file (re claim 8 - the encrypted class bytecodes embedding more encryption data is considered to be larger than the original first sub-file before encryption).

As per claim 9, Chiang discloses a class loader (re claim 1). Chiang does not explicitly disclose generating of third sub-file and fourth sub-file in the same context as addressed in claim 1 above. In view of Chiang's teaching of loading class related bytecode sets for decrypting and translating into exectuble, it would have been obvious for one of ordinary skill in the art at the

time the invention was made to load the class bytes as intended by Chiang's so that a third sub-file is stored and encrypted and a fourth sub-file is retrieved therefrom for being decrypted and converted into runtime executables.

As per claims 10, 12, 14-16, these claims correspond respectively to claims 2, 4, 6-8 from above; hence, are rejected with the corresponding rejections.

As per claim 17, the rationale for a first sub-file being equivalent in size with a set of bytecodes (3rd sub-file) retrieved from the medium disclosed by Chiang (re claim 1) herein applies as has been in claim 6.

As per claim 18, the rationale for a first sub-file being larger in size to a set of bytecodes retrieved from the medium disclosed by Chiang (re claim 1) herein applies as has been in claim 7.

As per claim 19, the rationale for a first sub-file being smaller in size to a set of bytecodes retrieved from the medium disclosed by Chiang (re claim 1) herein applies as has been in claim 8.

As per claims 20, 21, and 22, Chiang does not disclose that the 2nd sub-file is equivalent in size to, larger in size than, or smaller in size than said fourth sub-file. But in view of the class loading as taught by Chiang, a class can encompass more than one subclasses hence a set of class retrieved (e.g. a 4th sub-file) from a bytecodes storage can very well be a set of classes of equal size than a previously retrieved set (2nd sub-set) , or larger or smaller than such set. Hence the limitations are implicitly disclosed.

As per claim 23, this is the intermediate source code version of claim 1 above; hence is rejected using rejection applied to the bytecodes (equivalent to intermediate source code) version of claim 1 with the teachings of Chiang and Fallon.

As per claims 24, 26, 28-30, see corresponding rejections of claims 2, 4, 6-8, respectively.

As per claim 31, this is the intermediate source code version of claim 9 above; hence is rejected using rejection applied to the bytecodes version of claim 9 with the teachings of Chiang and Fallon.

As per claims 32, 34, 36-38, these claims correspond respectively to claims 10, 12, 14-16 from above; hence, are rejected with the corresponding rejections.

As per claims 39-44, these claims correspond respectively to claims 17-22 from above; hence, are rejected with the corresponding rejections.

As per claim 45, this is a computer readable medium version of claim 1; hence is rejected using the rationale of claim 1.

As per claim 46, this is an apparatus version of claim 1; hence is rejected using the rationale of claim 1.

As per claims 47-50, these are computer program, circuit apparatus, media/apparatus of claim 1, respectively; hence are rejected using the rejection of claim 1.

As per claim 54, this media claim, similar to claim 49, includes the steps to generate, encrypt, write, decrypt; and compile as recited in claim 1 above; hence is rejected with the corresponding rejections as set forth therein.

As per claim 55, Chiang does not explicitly disclose deploying of the media of claim 54; but this limitation is also implicitly disclosed because it is evident that Chiang's bytecodes loading method is to be implemented onto some computer media, executed or deployed.

As per claim 56, this is a computer program means version of claim 1; hence is rejected using the corresponding rejections as set forth therein.

As per claim 57, this is a computer readable medium version of claim 56; hence is rejected using the rationale of claim 56.

7. Claims 3, 5, 11, 13, 25, 27, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al., WO 99/41651, in view of Fallon et al., USPubN: 2002/0080871; and further in view of Granger et al., USPN: 6,334,189 (hereinafter Granger).

As per claim 3, Chiang does not explicitly disclose that the sub-file stored for encryption and for subsequent decryption consists of a line of source code. But Chiang teaches encrypting bytecodes with a constant or a key (pg. 6, lines 19-30) in order to identify the code for decryption, which entails reading or scanning data in the sub-file for detecting a key. Official notice is taken that encrypting a line of data like a data header in packets or secure content being transmitted across the internet/network was a known concept in the art of data distribution and network protocol at the time the invention was made. Granger, in a method to protect distributed software content across platforms and to obfuscate application code analogous to Chiang's method of encryption, discloses scanning of plain text of files (Note: scanning implying line by line processing) in an encryption scheme using header and line-by-line encryption basis (e.g. Fig. 8). In case Chiang' s method does not teach encrypting of just one line of bytecodes for decryption, it would have been obvious for one of ordinary skill in the art at the time the

invention was made to implement the obfuscation scheme in Chiang's method so that only one line of software code be stored for encryption and decryption purposes just as suggested by the well-known concept of header encryption or by Granger's text line encryption. The motivation for this is that some transmitted content is of size that is too prohibitive to encrypt and that encrypting only one line representing that content can alleviate resources, just as recognized by the encrypted data header as mentioned above.

As per claim 5, this limitation of having a 2nd sub-file consisting of one line would have been obvious in view of the same rationale as set forth in claim 3 above.

As per claims 11 and 13, these claims correspond to claims 3 and 5 from above; hence, are rejected with the corresponding rejections.

As per claims 25 and 27, these claims correspond to claims 3 and 5 from above; hence, are rejected with the corresponding rejections.

As per claims 33 and 35, these claims correspond to claims 25 and 27 from above; hence, are rejected with the corresponding rejections.

8. Claims 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al., WO 99/41651, in view of Fallon et al., USPubN: 2002/0080871; and further in view of McDonnal et al., USPN: 5,699,428 (hereinafter McDonnal).

As per claim 51, Chiang discloses

a source code encrypter (pg. 5, line 21 to col. 6, line 4);

a storage medium coupled with a source code encrypter (pg. 6, lines 4-5, 15-19);

a source code decrypter coupled with said medium (pg. 6, lines 4-5, 15-19); and

a compiler coupled with said decrypter (pg. 6, lines 21 to col. 7, line 7 ; Fig. 1; Java Virtual Machine - pg. 4, line 11-13).

But Chiang does not specify that the storage medium is a buffer; however, this limitation has been addressed in claim 1 using Fallon.

Nor does Chiang or Fallon disclose a on-the-fly source code encrypter. McDonnal, in a method to provide confidential data or program for use in network computers analogous to the distribution of encrypted bytecodes for secure use by recipients in Chiang's method, discloses a on-the-fly encryption engine in a per-use basis decryption of files (e.g. *on-the-fly control code 163* – Fig. 1; *OTF* step *422* – Fig. 4B). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the per-use basis process by McDonnal applying the on-the-fly encryption to those selected files which are to be loaded for execution as intended by Chiang because the on-the-fly (OTF) encryption/decryption process would help alleviate resources when resources become a constraint in certain platforms, and also by providing a dynamic per-use authorization scheme, this would render the security of data to be used less prone to spoofs or attacks for being stabilized or static for a elongated period of time (see McDonnal: background, col. 1-4).

As per claims 52 and 53, the limitation to use on-the-fly source code decryption and to couple a code generator to a OTF encrypter would also have been obvious for the same rationale as set forth in claim 51 above; because the effect of implementing dynamic per-use activation of code/data with OTF encryption/decryption would be nullified if only one OTF method is used without the other OTF method being implemented (see rationale using McDonnal's teaching).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:
(703) 872-9306 (for formal communications intended for entry)
or: (703) 746-8734 (for informal or draft communications, please consult Examiner before using this number)
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. , 22202. 4th Floor(Receptionist).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAT
March 17, 2004

TODD INGBERG
PRIMARY EXAMINER